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Department of Environmental Quality  
State Air Program

Formation Capital Corporation, U.S.  
812 Shoup Street  
Salmon, ID 83467  
Tel: 208.756.4578 Fax: 208.756.2573

July 16, 2008

Mr. Morrie Lewis  
Department of Environmental Quality  
Air Quality Division  
1410 N. Hilton  
Boise ID 83706-1255

D

Department of Environmental Quality  
State Air Program

Subject: Pre-Permit Construction Approval Request – The Idaho Cobalt Project

Dear Mr. Lewis:

The Salmon-Challis National Forest issued a Record of Decision in June, 2008 regarding the Idaho Cobalt Project (ICP) to approve an amended Formation Capital Corporation, U.S. (FCC) Plan of Operations to mine cobalt, copper and gold in the Panther Creek drainage. Upon the conclusion of the required 45-day waiting period and approval of the amended ICP Plan of Operations, FCC will begin the construction/development phase of the project.

Pursuant to Idaho Administrative Procedures Act (IDAPA) 58.01.01 – Department of Environmental Quality, Rules for the Control of Air Pollution in Idaho, FCC is pleased to submit this pre-permit construction approval request. Enclosed with this letter is a comprehensive application package that includes the required supporting documentation identified in section 213.01. To support our request, a public information meeting is scheduled to take place on July 21, 2008 in Salmon, ID between the hours of 7 to 9 pm. Hard copy and electronic files, including modeling data, are provided for your reference. Additional documentation can be provided at your request, if necessary.

We appreciate your prompt attention to our pre-permit construction approval request. Should you have any questions or concerns regarding this request, please contact my Environmental Manager, Mr. Preston Rufe, P.E. at 208-756-4578 ext. 24 or by email at [prufe@formcap.com](mailto:prufe@formcap.com).

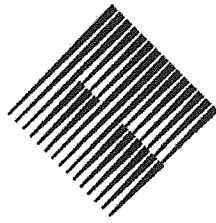
Respectfully,

Guy Jeske, P.E.  
General Manager, Idaho Cobalt Project

Attachments:  
Permit to Construct Application  
Check for Application Fee  
CD-ROM

**INTERNAL USE ONLY - STATIONARY SOURCE PROGRAM  
FEES RECEIVED FROM FACILITY**

<b>Date Stamp (Date Received in Program Office)</b>	
<p align="right"> <b>RECEIVED</b>  <b>JUL 18 2008</b>          Department of Environmental Quality          State Air Program       </p>	
<b>Facility Name</b>	PURIFICATION CAPITAL CORP IDAHO COBALT PROJ.
<b>Facility Location</b>	COBALT, ID
<b>Fee Type:</b>	
PTC Application Fee	<input checked="" type="checkbox"/> Amount Received:
PTC Processing Fee	<input type="checkbox"/> Amount Received:
T2 Processing Fee	<input type="checkbox"/> Amount Received:
PBR Registration Fee	<input type="checkbox"/> Amount Received:
<b>Check Number</b>	5931
<b>Check Date</b>	7/15/08
<b>Total Amount of Check</b>	\$1,000
<b>Signature/Date of Person Receiving</b>	P. Heitman 7/18/08



**Formation**

**Idaho Cobalt Project  
Permit to Construct Application  
With Request for Pre-Permit Construction Approval**

**Prepared for:  
Formation Capital Corporation, U.S.  
812 Shoup Street  
Salmon, Idaho 83467**

**Submitted to:  
Idaho Department of Environmental Quality  
Air Quality Division  
1410 N. Hilton  
Boise, Idaho 83706**

**July 2008**

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## **Introduction**

This Permit-to-Construct application is being submitted by Formation Capital Corporation, U.S. for its Idaho Cobalt Project (ICP) in support of our request for a Permit To Construct for the project. Air quality modeling performed in support of the application demonstrates compliance with the National Ambient Air Quality Standards for criteria pollutant and Idaho Toxic Air Pollutants acceptable ambient concentrations set forth in IDAPA 58.01.01.585 and 586. This application includes a request for Pre-Permit Construction Approval consistent with IDAPA 58.012.01.213 and the IDEQ Pre-Permit Construction Approval Guidance Document. Appendix F includes a copy of the IDEQ completeness checklist for this type of application, documenting how all application completeness requirements have been met.

The facility Emission Inventory (Tables 4-1 and 4-2 and in more detail in Appendix D) shows that facility-wide emissions are well below the 250 ton per year criteria pollutant major source category for this non-designated facility, and below the 100 ton per year threshold for Title V major sources. Facility HAP emissions are minimal and do not approach the HAP major source threshold of 25 tons/yr. Therefore, this proposed action is a minor modification to a minor source. As such, the facility is eligible for the Pre-Permit Construction process being requested here.

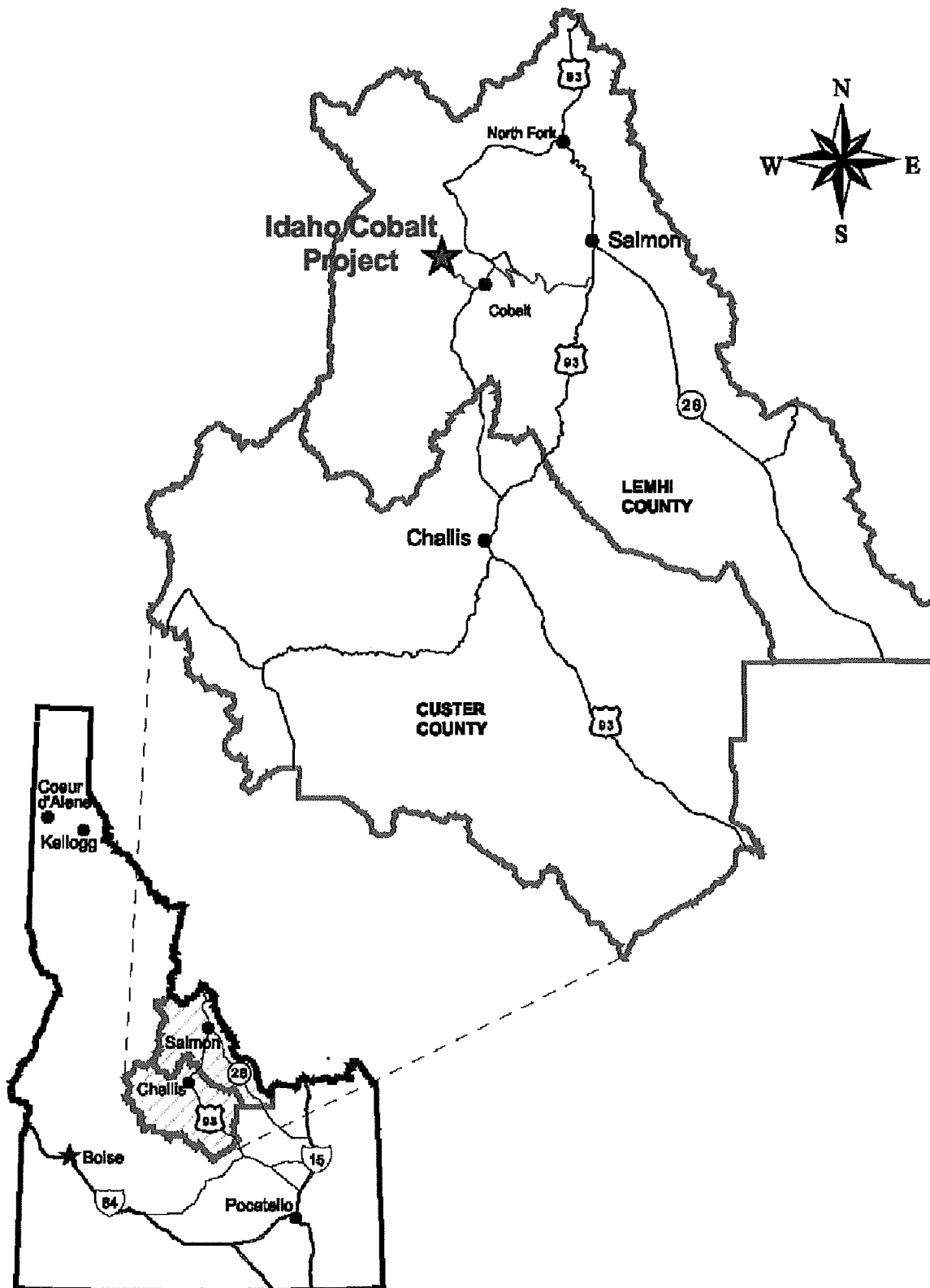
The Idaho Cobalt Project (ICP) is under development by Formation Capital Corporation, U.S. The project will consist of a mine, mill and concentrator. It will be located approximately 26 miles (42 km) west of Salmon, Idaho on unpatented mining claims adjacent to the old Blackbird Mine site.

There will also be concurrent reclamation in the construction and operating phases as existing disturbed areas or new disturbance is reclaimed to post-use conditions.

## ***Project Location***

The Idaho Cobalt Project (ICP), operated by Formation Capital Corporation, U.S., is located approximately 45 road miles from Salmon, Idaho or 26 direct miles (see Site Area Maps). It is centered on 45°07'50" North latitude and 114°21'42" West longitude and can be found on the Gant Mountain, 7.5 minute, United States Geological Survey (USGS) Topographic Map. The project area is within or adjacent to Sections 8, 9, 15, 16, 17, 20, 21, and 22 Township 21 North, Range 18 East. The property is composed of several deposits acquired by locating and filing mining claims within the Salmon-Cobalt Ranger District for the Salmon National Forest. The property consists of 145 patented mining claims for a total of 2,524 acres of mineral rights. The ICP is within the Panther Creek sub-basin of the Salmon River. The Project area contains flat-topped mountains and moderate to steep V-shaped canyons and covers an area ranging in elevation from 6,100 to 8,100 ft.

Figures 1-1, 1-2 provide general location, claim boundary, and site specific information. More details on the facility location and operational layout are provided in the facility plot plan and process flow diagrams provided in Section 2.0. Please note that all figures are included electronically with this application package on the accompanying CD-ROM.



**FIGURE 1-1  
GENERAL LOCATION MAP**

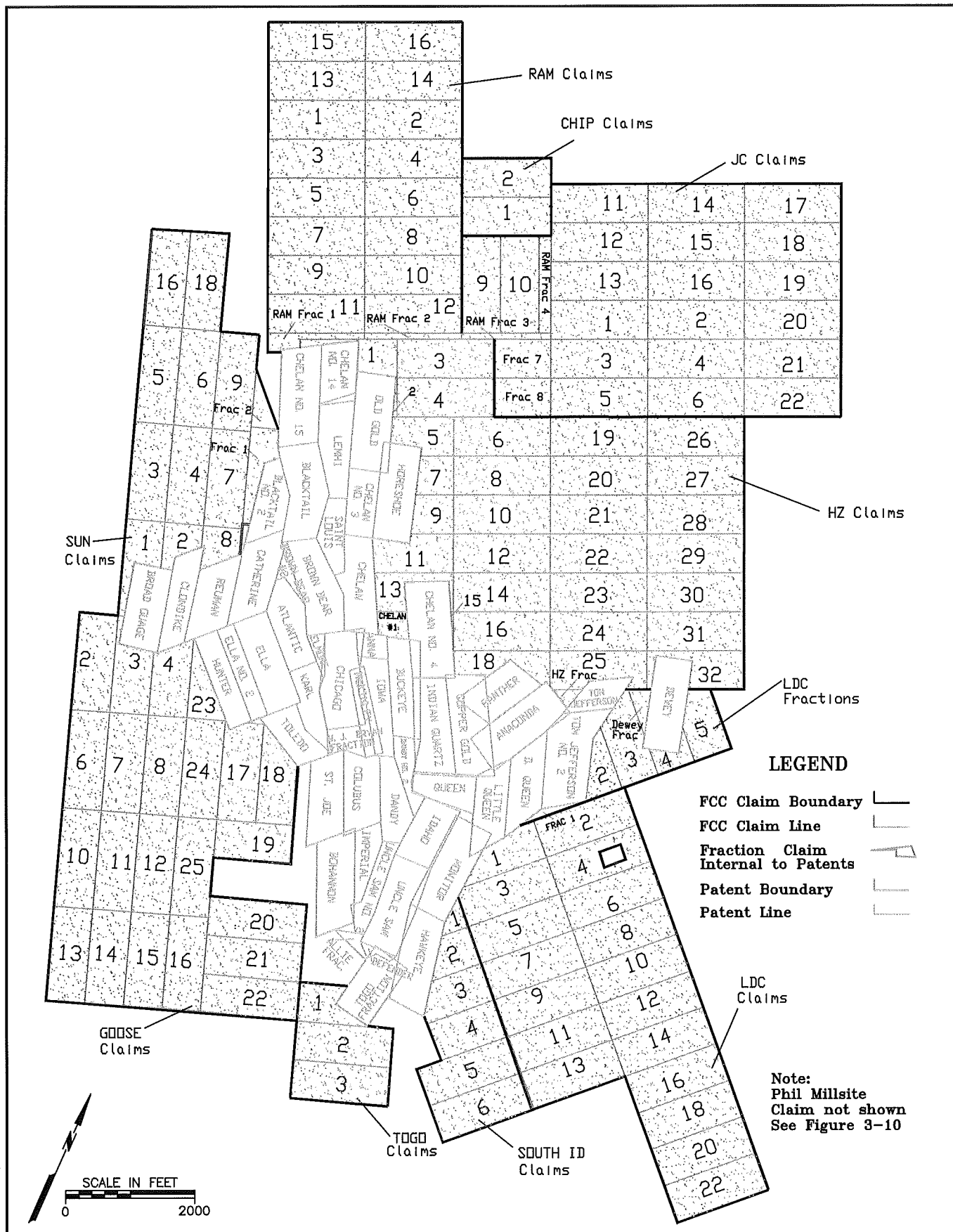
IDAHO COBALT PROJECT  
AIR PERMIT APPLICATION

June 2008



All permitted project activity is proposed to occur on the northern half of the project claims shown in Figure 1-2. No activity is proposed south of the sun and HZ claims, and the ambient air boundary for the project impact analysis was set accordingly.





**FIGURE 1-2  
IDAHO COBALT PROJECT CLAIM MAP**

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## **1.0 Process Description**

### **Overview**

The mill and ancillary facilities will include coarse and fine ore storage, an ore stockpile conveyor, a crushing, grinding, and flotation plant, pipelines, concentrate equipment, and shipping docks. Froth flotation will be used to process ore from the mines. Ancillary facilities will include offices, warehouse, change rooms, shipping and receiving docks, emergency sleeping quarters, and other structures or buildings necessary for efficient operation of the ICP.

The mine will consist of two separate underground operations used to extract ore, the Ram and the Sunshine. The Ram is the larger ore body with about 2.23 million tons of reserve while Sunshine ore body has approximately 0.34 million tons of reserve. Together these ore bodies contain about 33 million pounds of cobalt and 22 million pounds of copper. The ore production rate for mining has been established at approximately 280,000 tons per year, or 800 tons per day assuming a 350-day-per-year operating schedule. The startup rate will be approximately 400 tons per day in the first year, and ramp up to full production in the third year. An overview of the process flow is depicted in Section 2.0.

### **Detailed Description**

The facility processes will start with ore being extracted underground. Trucks will transport the ore out the mine portal. Ventilation of the underground workings is also out through the portal. The mine ventilation system is designed to turn over the air underground completely each hour. The preferred option for ore transport to the processing facilities at the crusher and concentrator buildings will be a tram and is herein referred to as the “tram” alternative. Trucks exiting the mine will unload ore into a bin, from which the tram will be loaded. That process will involve approximately three transfer emission area sources, as well as road dust from the short travel distance from the portal to the tram bins. The tram will then carry the ore overland to transfer drops onto an ore stockpile outside the crusher building and a waste rock stockpile alongside. Waste materials from the waste rock stockpile will be loaded into a truck and transported to the Tailing and Waste Storage facility (TWSF), involving transfer emission sources to get the material into and out of the truck, and minimal wind erosion from the TWSF. The alternative ore transport method would be to drive the ore trucks from the portal to the ore stockpile outside the crusher building, with occasional trips from the portal to the TWSF for non-processable materials and is herein referred to as the “no tram” alternative. That alternative could come into play before the tram is completed, or possibly if there are practical difficulties establishing or maintaining tram service. Modeling analyses will show compliance with ambient air quality impact limits under either ore transport scenario.

Ore from the ore stockpile outside the crusher building will be transported by front end loader to the primary crusher feed bin outside the crusher building. The feed from that bin

is totally enclosed as it goes into the crusher building. The ore is crushed and screened inside the crusher building. All crushing and screening operations will occur within the totally enclosed crusher building. A dust collection system will route all particulates generated in the building through a baghouse before discharge to ambient air. The controlled emission rate from the dust collector represents the emissions generated inside the crusher building, plus the effects of the baghouse controls. The crushed and screened ore is transported from the crusher building to the fine ore bin outside the concentrator building via a conveyor system fully enclosed on the bottom and fairly tall sides with no intermediate drops until the final enclosed drop into the fine ore bin. Despite the name of the receiving bin, the ore is coarse with the vast majority of material far exceeding 10 microns in diameter. The drop into the fine ore bin, though fully covered, is considered a controlled emission source because displaced air within the bin can escape through filters atop the bin.

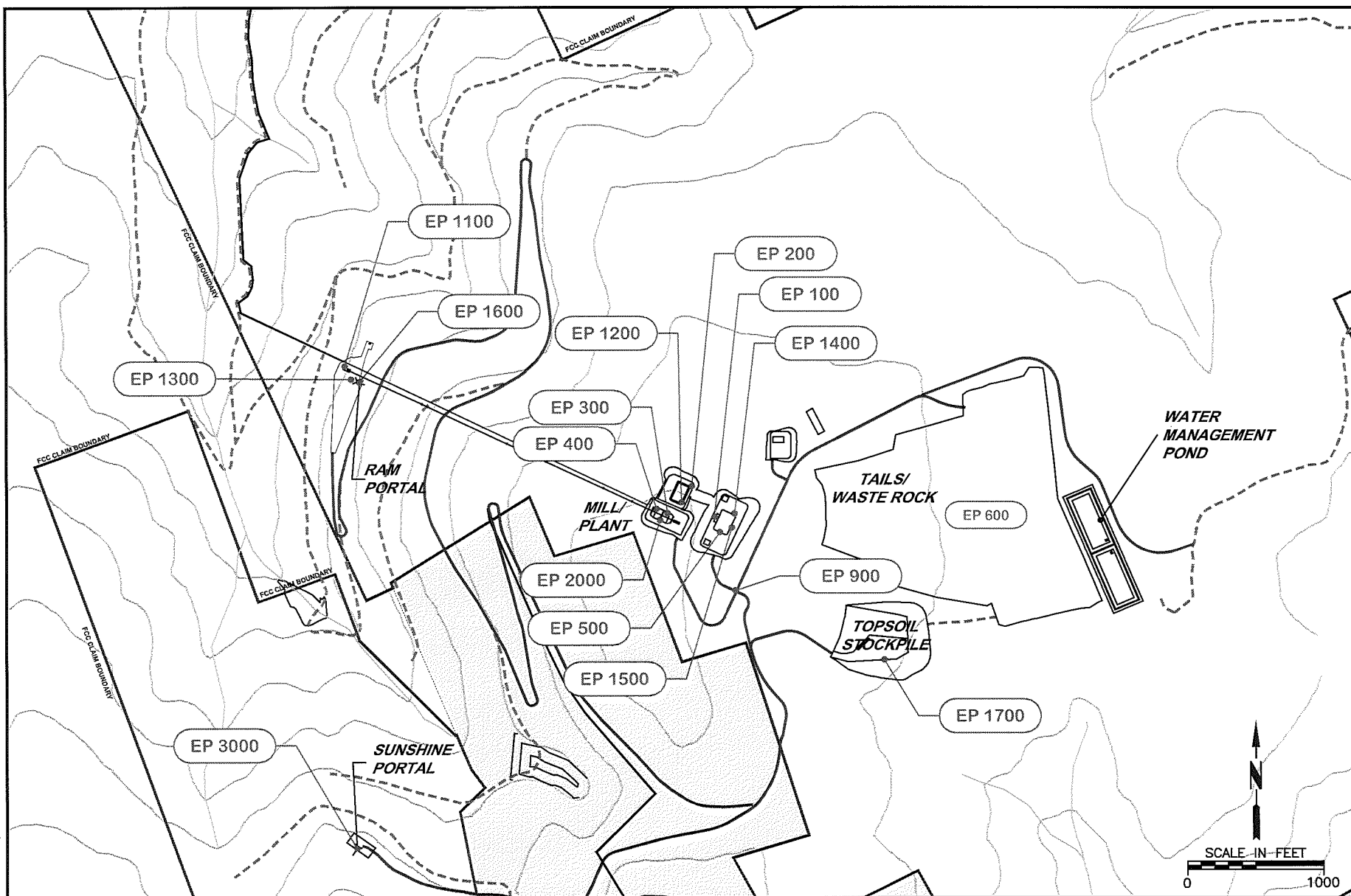
Ore from the fine ore bin is transferred into the concentrator building in a fully enclosed transfer. Promptly upon entering the concentrator building, the ore is wetted into slurry to prevent dust generation and facilitate processing. All subsequent processes within the concentrator building involve wet or slurried materials eliminating dust generation. The concentrator building includes a cement silo on its east side. The silo is filled pneumatically with dried cement delivered by truck. Like the fine ore bin, the cement silo has a filtered outlet where potential dust accompanying displaced air during the filling of the silo represents a controlled fugitive emission. The cement is used to solidify non-product material in the ore for potential use in backfilling the mine or for use in shotcrete that will be used for wall stabilization inside the mine. Outflow from the cement silo into the concentrator building is fully enclosed, with the cement wetted promptly upon entering the building. Another cement silo will be located near the mine portal at least temporarily. It will also have a controlled fugitive emission source associated with its use. Outflow from the concentrator building includes a small tailings pile on the south side that will be cleared daily and transported to the TWSF (involving a few transfer emission sources), and truckloads of recovered ore concentrate that will be transported offsite as saleable product.

## **2.0 Plot Plan and Process Flow Diagrams**

The four figures below show the site plan and process flow both facility-wide and within each of the main process areas.

Figure 2-1 shows the overall, scaled site plan with emission sources identified. The subsequent figures (Figures 2-2 through 2-4) show the individual processes, their respective sub-processes, and associated emission sources.

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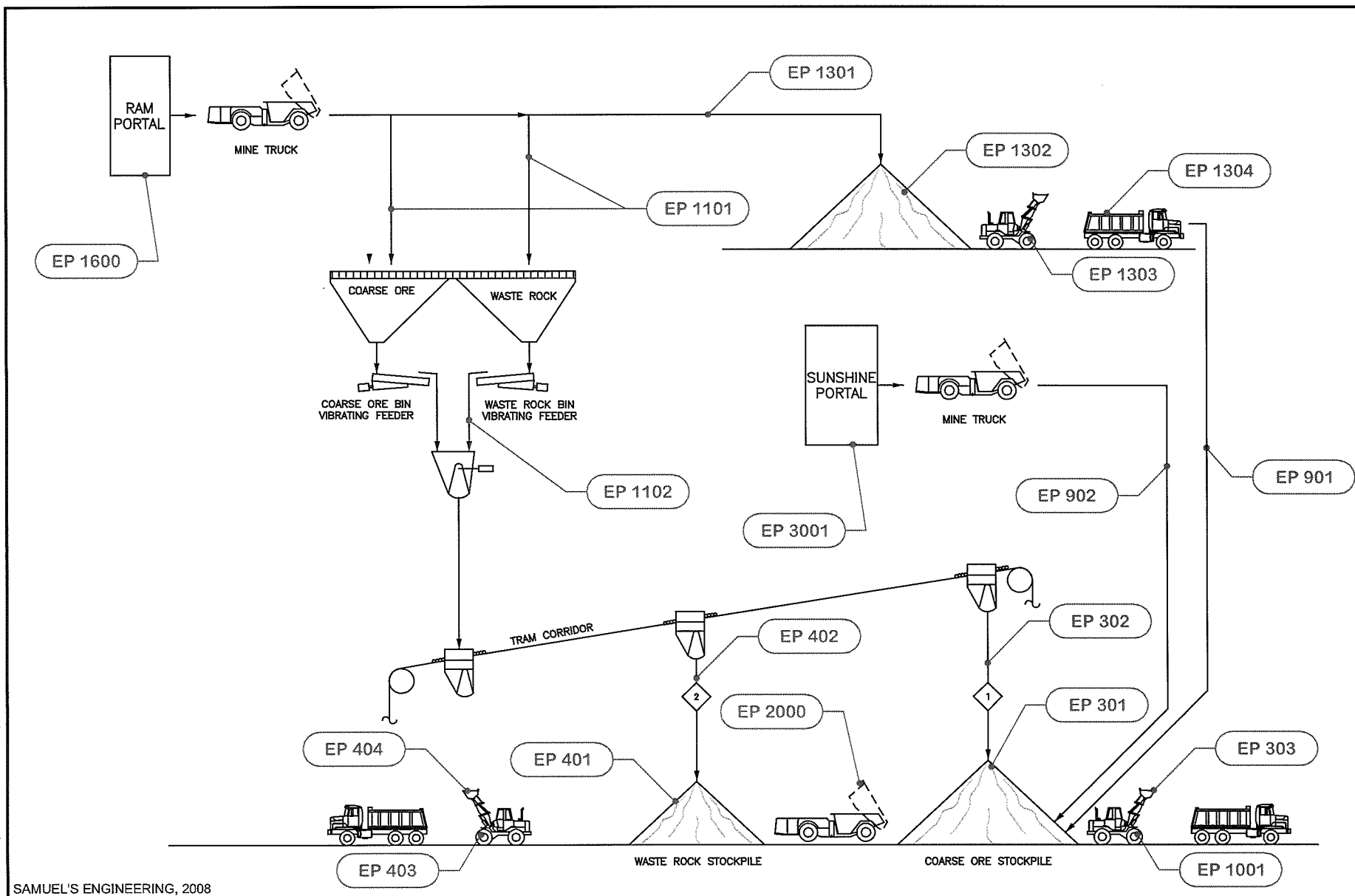


**FIGURE 2-1  
EMISSION POINT OVERVIEW**

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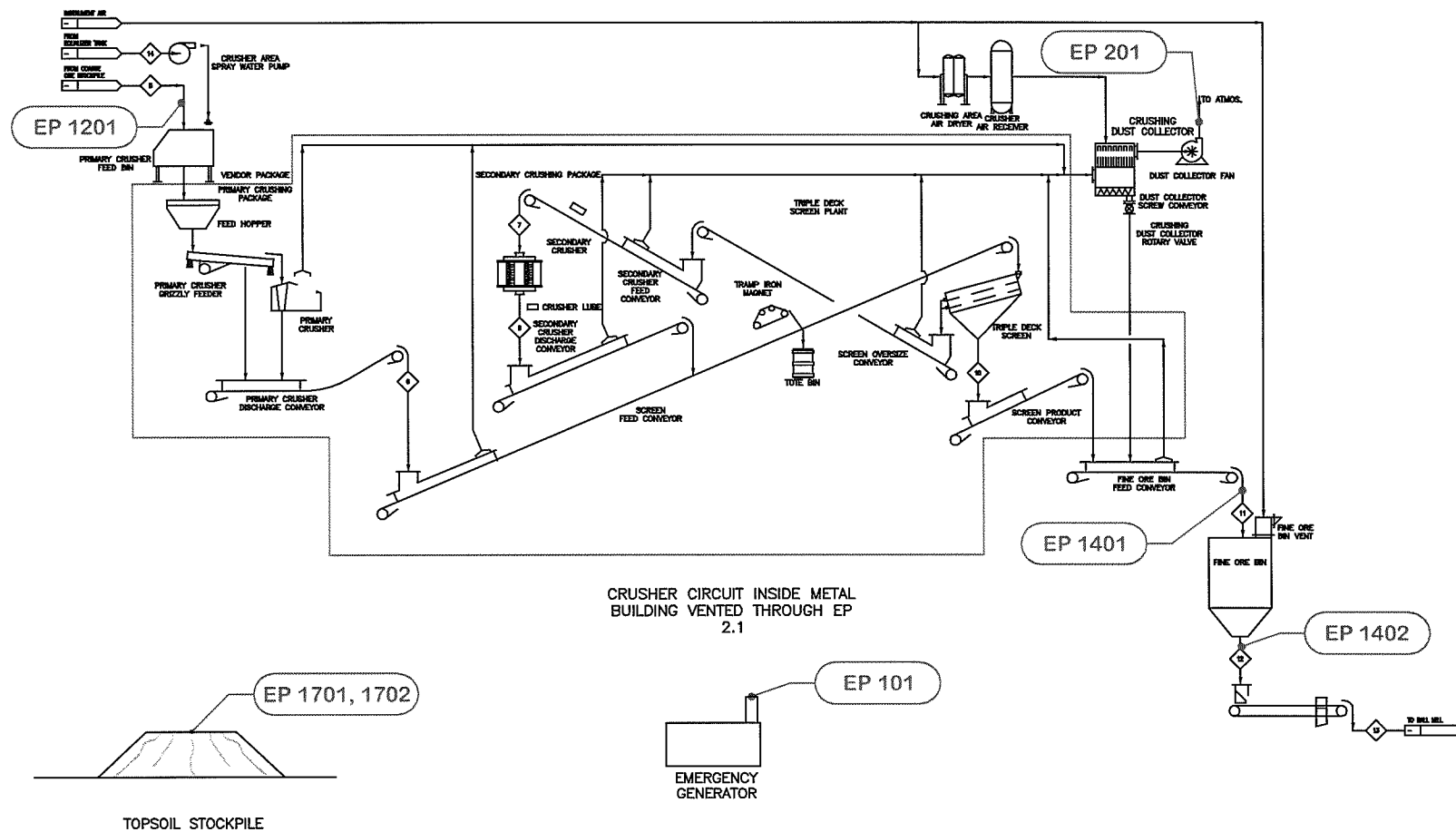


**FIGURE 2-2  
MINE TO CRUSHER FEED**

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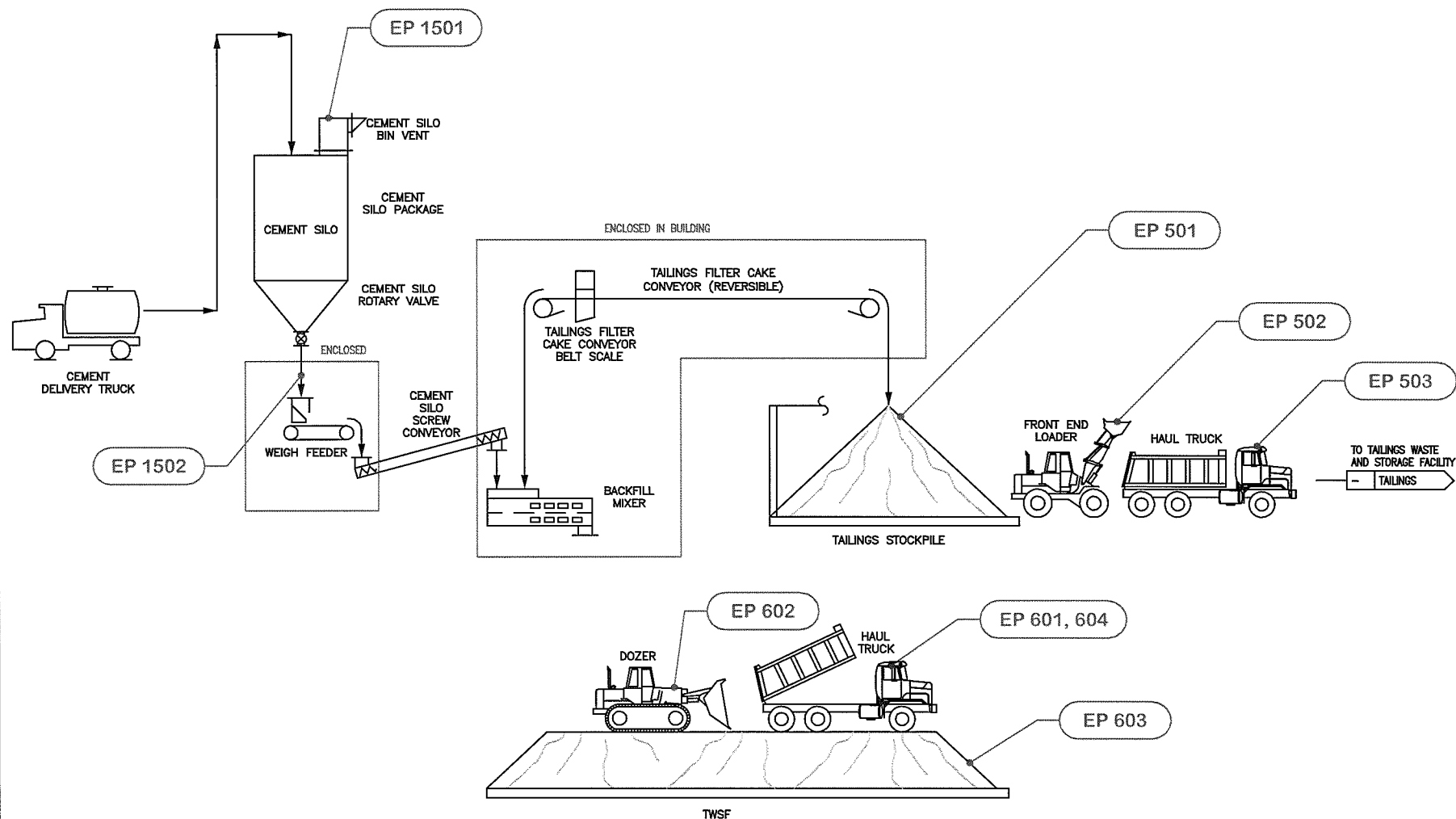
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**FIGURE 2-3  
CRUSHING PROCESS**

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**FIGURE 2-4  
BACKFILL AND TAILINGS HANDLING**

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### 3.0 Applicable Requirements

Table 3-1 cites the applicable and inapplicable requirements of the Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01) for air emitting activities at the facility affected by the proposed action:

Table 3-1 Applicable and Inapplicable IDAPA 58.01.01 Requirements

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Recordkeeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
000	LEGAL AUTHORITY General Applicability	N/A	No	N/A	No substantive requirements (Note B)
001	TITLE AND SCOPE General Applicability	N/A	No	N/A	No substantive requirements (Note B)
002	WRITTEN INTERPRETATIONS General Applicability	N/A	No	N/A	No substantive requirements (Note B)
003	ADMINISTRATIVE APPEALS General Applicability	N/A	Yes	N/A	No substantive requirements
004	CATCHLINES General Applicability	N/A	Yes	N/A	No substantive requirements
005	DEFINITIONS General Applicability	N/A	Yes	N/A	No substantive requirements
006	GENERAL DEFINITIONS General Applicability	N/A	Yes	N/A	No substantive requirements
007	DEFINITIONS FOR THE PURPOSES OF SECTIONS 200 THROUGH 225 AND 400 THROUGH 461 General Applicability	N/A	Yes	N/A	Sections 400-461 don't apply for this application; not requesting and don't need a Tier II Operating permit  No substantive requirements
008	DEFINITIONS FOR THE PURPOSES OF SECTIONS 300 THROUGH 386 General Applicability	N/A	No	N/A	No substantive requirements
009	DEFINITIONS FOR THE PURPOSES OF 40 CFR PART 60 General Applicability	Recordkeeping, Monitoring and Reporting	Yes	Yes	No substantive requirements
010	DEFINITIONS FOR THE PURPOSES OF 40 CFR PART 61 AND 40 CFR PART 63	N/A	Yes	N/A	No substantive requirements
011	DEFINITIONS FOR THE PURPOSE OF SECTIONS 790 THROUGH 799	N/A	No	N/A	N/A
106	ABBREVIATIONS General Applicability	N/A	Yes	N/A	No substantive requirements
107	INCORPORATIONS BY REFERENCE General Applicability	N/A	Yes	N/A	No substantive requirements
121	COMPLIANCE REQUIREMENTS BY DEQ General Applicability	As specified for individual requirements	Yes	Yes	No existing compliance requirements. Will meet any subsequent requirements

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Recordkeeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
122	INFORMATION ORDERS BY DEQ General Applicability	N/A	No	N/A	Confirms regulatory authority
123	CERTIFICATION OF DOCUMENTS General Applicability	Recordkeeping	Yes	Yes	Certification accompanies this submission on form GI in Appendix A
124	TRUTH, ACCURACY AND COMPLETENESS OF DOCUMENTS General Applicability	Recordkeeping	Yes	Yes	
125	FALSE STATEMENTS General Applicability	Recordkeeping	Yes	Yes	
126	TAMPERING General Applicability	Recordkeeping	Yes	Yes	
127	FORMAT OF RESPONSES General Applicability	Recordkeeping	Yes	Yes	
128	CONFIDENTIAL INFORMATION General Applicability	Recordkeeping	Yes	Yes	
130-136	UPSET, BREAKDOWN, AND EXCESS EMISSIONS REQUIREMENTS	Reporting/Recordkeeping	Yes	Yes	
140-149	VARIANCE PROCEDURES and PETITIONS General Applicability	N/A	No	N/A	N/A
155	CIRCUMVENTION General Applicability	Recordkeeping	Yes	Yes	No installation or use of any device conceals an emission of air pollutants.
156	TOTAL COMPLIANCE General Applicability	Recordkeeping	Yes	Yes	
157	TEST METHODS AND PROCEDURES General Applicability	Recordkeeping	Yes	Yes	
160	PROVISIONS GOVERNING SPECIFIC ACTIVITIES AND CONDITIONS General Applicability	Recordkeeping	Yes	Yes	
161	TOXIC SUBSTANCES General Applicability	Recordkeeping	Yes	Yes	State regulatory authority
162	MODIFYING PHYSICAL CONDITIONS General Applicability	N/A	No	N/A	Confirms regulatory authority
163	SOURCE DENSITY	N/A	No	N/A	State regulatory authority not invoked because of ambient impact compliance demonstration
164	POLYCHLORINATED BIPHENYLS (PCBS) Requirements or Standards: Prohibits burning PCB containing materials, in quantities greater than five (5) ppm, except for disposal.	N/A	No	N/A	N/A. facility does not conduct this activity
200 - 203	PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT General Applicability	N/A	Yes	Yes	Confirms regulatory authority and describes procedure for permit applications
204	PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN NONATTAINMENT AREAS	N/A	No	N/A	N/A
205	PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN ATTAINMENT OR UNCLASSIFIABLE AREAS	N/A	No	N/A	N/A

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Recordkeeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
206 - 208	OPTIONAL OFFSETS FOR PERMITS TO CONSTRUCT; EMISSION REDUCTION CREDIT; NET AIR QUALITY BENEFIT	N/A	Yes	N/A	N/A
209	PROCEDURES FOR ISSUING PERMITS	N/A	Yes	N/A	Documents state permit issuing methodology
210	DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS	Recordkeeping/Reporting	Yes	Yes	EI documents no TAPs emitted above IDAPA ELs.
211	CONDITIONS FOR PERMITS TO CONSTRUCT	N/A	Yes	N/A	Documents state regulatory authority
212	OBLIGATION TO COMPLY	Specific for each requirement	Yes	N/A	Documents facility's requirement to comply with state, federal, and permit requirements
213	PRE-PERMIT CONSTRUCTION	N/A	Yes	N/A	Section 1.0 documents requested Pre-Permit construction is consistent with these requirements
214	DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE FOR NEW AND RECONSTRUCTED MAJOR SOURCES OF HAZARDOUS AIR POLLUTANTS	Recordkeeping/Reporting	Yes	Yes	N/A. Not a major source
220 - 223	EXEMPTIONS FROM PERMIT TO CONSTRUCT REQUIREMENTS	N/A	Yes	N/A	N/A
224 - 227	FEES	N/A	Yes	N/A	Application fee is submitted; proponents will promptly pay processing fee when assessed.
228	APPEALS	N/A	Yes	N/A	
300-387	PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS General Applicability	N/A	No	N/A	Emissions put the proposed ICP below thresholds for inclusion in the Title V program
400-461	PROCEDURES AND REQUIREMENTS FOR TIER II OPERATING PERMITS	N/A	No	N/A	N/A
500	REGISTRATION PROCEDURES AND REQUIREMENTS FOR PORTABLE EQUIPMENT	N/A	No	N/A	N/A
510	STACK HEIGHTS AND DISPERSION TECHNIQUES	Air Dispersion Modeling; Recordkeeping, Reporting	Yes	Yes	Section 7 demonstrates compliance with regulatory modeling requirements
511	APPLICABILITY	Recordkeeping	Yes	Yes	
512	DEFINITIONS	Recordkeeping	Yes	Yes	
513	REQUIREMENTS	Recordkeeping	Yes	Yes	
514	OPPORTUNITY FOR PUBLIC HEARING	N/A	No	No	Documents regulatory authority and permit processing methodology
515	APPROVAL OF FIELD STUDIES AND FLUID MODELS	N/A	No	No	Administrative and/or procedural
516	NO RESTRICTION ON ACTUAL STACK HEIGHT	N/A	Yes	N/A	No substantive requirements
550-561	AIR POLLUTION EMERGENCY RULE	N/A	No	N/A	Applicability is case-by-case

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Recordkeeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
562	SPECIFIC EMERGENCY EPISODE ABATEMENT PLANS FOR POINT SOURCES	N/A	No	N/A	Facility emissions make it unlikely to be required by the Department to prepare an Emergency Episode Abatement Plan.
563 - 574	TRANSPORTATION CONFORMITY	N/A	No	N/A	N/A
575-581	AIR QUALITY STANDARDS AND AREA CLASSIFICATION	Air Dispersion Modeling and Monitoring	Yes	Yes	Section 7 demonstrates compliance with regulatory modeling requirements
582	INTERIM CONFORMITY PROVISIONS FOR NORTHERN ADA COUNTY FORMER NON-ATTAINMENT AREA FOR PM-10	No	NA	N/A	N/A
585-586	TOXIC AIR POLLUTANTS NON-CARCINOGENIC INCREMENTS, TOXIC AIR POLLUTANTS CARCINOGENIC INCREMENTS	Recordkeeping/Reporting	Yes	Yes	No TAPs proposed to be emitted at levels approaching IDAPA 585 or 586 ELs
587	LISTING OR DELISTING TOXIC AIR POLLUTANT INCREMENTS	N/A	No	N/A	Documents regulatory authority
590	NEW SOURCE PERFORMANCE STANDARDS	Monitoring, Reporting, Recordkeeping	Yes	Yes	Compliance with any applicable NSPS is documented in permit application
591	NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS	N/A	No	N/A	N/A.
600-609	RULES FOR CONTROL OF OPEN BURNING	N/A	No	N/A	N/A for proposed action
610	INDUSTRIAL FLARES	N/A	No	N/A	No substantive requirements
611-616	RULES FOR CONTROL OF OPEN BURNING	N/A	No	N/A	N/A for proposed action.
625	VISIBLE EMISSIONS	Monitoring, Reporting, Recordkeeping	Yes	Yes	Will be followed where required in permit
626	GENERAL RESTRICTIONS ON VISIBLE EMISSIONS FROM WIGWAM BURNERS	N/A	No	N/A	N/A.
650-651	RULES FOR CONTROL OF FUGITIVE DUST	Reasonable steps taken to control or mitigate fugitive dust	Yes	Yes	Reasonable precautions will be utilized to control fugitive emissions at this facility, consistent with IDAPA regs and the proposed permit.
675	FUEL BURNING EQUIPMENT - PARTICULATE MATTER Facility operates fuel burning equipment.		No	N/A	See rules 676-680
676	STANDARDS FOR NEW SOURCES	Recordkeeping	Yes	N/A	The few facility combustion sources will meet IDAPA emission standards
677	STANDARDS FOR MINOR AND EXISTING SOURCES	N/A	No	N/A	The few facility combustion sources will meet IDAPA emission standards
678-680	COMBINATIONS OF FUELS	N/A	No	N/A	"
681	TEST METHODS AND PROCEDURES	Use of required test procedure(s)	No	N/A	"

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Recordkeeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
700	PARTICULATE MATTER -- PROCESS WEIGHT LIMITATIONS.		Yes	Yes	See rules 701-703
701	PARTICULATE MATTER -- NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS.	Monitoring and Testing	Yes	Yes	Where applicable, process weight limitations will be met by project
702	PARTICULATE MATTER -- EXISTING PROCESS WEIGHT LIMITATIONS	Monitoring and Testing	No	N/A	Where applicable, process weight limitations will be met by project
703	PARTICULATE MATTER -- OTHER PROCESSES	N/A	No	N/A	Where applicable, process weight limitations will be met by project
725	RULES FOR SULFUR CONTENT OF FUELS General Applicability	N/A	No	N/A	Generator fuel will meet IDAPA sulfur content requirements
726	DEFINITIONS AS USED IN SECTIONS 727 THROUGH 729	N/A	No	N/A	
727	RESIDUAL FUEL OILS	N/A	No	N/A	N/A
728	DISTILLATE FUEL	N/A	No	N/A	N/A
729	COAL	N/A	No	N/A	N/A
750-751	RULES FOR CONTROL OF FLUORIDE EMISSIONS	N/A	N/A	N/A	N/A
775-776	RULES FOR CONTROL OF ODORS General Applicability	Facility representatives will investigate any odor complaint or identified issue.	Yes	N/A	(Note A); No substantive requirements for regulated units or activities.
785-787	RULES FOR CONTROL OF INCINERATORS	N/A	No	N/A	N/A
790 -- 802	EMISSION STANDARDS FOR CONTROL OF NONMETALLIC MINERAL PROCESSING PLANTS	N/A	No	N/A	N/A
805-808	RULES FOR CONTROL OF HOT-MIX ASPHALT PLANTS	N/A	No	N/A	N/A
815-826	RULES FOR CONTROL OF KRAFT PULPING MILLS	N/A	No	N/A	N/A
835-839	RULES FOR CONTROL OF RENDERING PLANTS	N/A	No	N/A	N/A
845-848	RULES FOR CONTROL OF SULFUR OXIDE EMISSIONS FROM SULFURIC ACID PLANTS	N/A	No	N/A	N/A
855-858	COMBINED ZINC AND LEAD SMELTERS	N/A	No	N/A	N/A
859	STANDARDS OF PERFORMANCE FOR MUNICIPAL SOLID WASTE LANDFILLS THAT COMMENCED CONSTRUCTION.....MAY 30, 1991	N/A	No	N/A	N/A
860	EMISSION GUIDELINES FOR MUNICIPAL SOLID WASTE LANDFILLS THAT COMMENCED CONSTRUCTION.....MAY 30, 1991	N/A	No	N/A	N/A

Citation under IDAPA 58.01.01	Title	Compliance Determination Method (Recordkeeping, Monitoring, Reporting, Test Method)	Applicable Yes or No	In Compliance Yes or No	Explanation Code and/or Additional Information
861	STANDARDS OF PERFORMANCE FOR HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS THAT COMMENCED CONSTRUCTION.....MARCH 16, 1998	N/A	No	N/A	N/A
862	EMISSION GUIDELINES FOR HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS THAT COMMENCED CONSTRUCTION BEFORE JUNE 20, 1996	N/A	No	N/A	N/A

APPLICABILITY EXPLANATION CODES

N/A -Not Applicable

IDEQ PTC Application Form FRA in Appendix A documents the applicability of Federal Regulations.

## **4.0 Potential To Emit / Emission Sources**

Air emission sources at the ICP include haul roads, ore and waste loaders and stockpiles, an ore crusher, storage bin, cement silo, and back-up generator. Detailed emissions sources are reflected on the PTC forms in Appendix A. All emission calculations, their derivations, references, and defense are shown in the emission inventory in Appendix D. The emission inventory is also provided in electronic form in the files on the accompanying CD.

Proposed facility Potential To Emit criteria air pollutants is summarized in Table 4-1. Yellow highlights indicate sources operating only under the “tram” scenario, where mined rock from the Ram portal is transported by tram for further processing onsite. Orange highlights under the “No tram” scenario for ore from the Ram portal indicate emissions that would replace the yellow highlighted emissions in the “tram” scenario. Green highlights indicate sources that would only operate under the “Sunshine” mine portal scenario.

**Table 4-1 Potential to Emit Criteria Pollutants**

Source ID	Source	NOx tpy	CO tpy	PM tpy	SOx tpy	TOC tpy	NOx lbs/hr	CO lbs/hr	PM lbs/hr	SOx lbs/hr	TOC lbs/h
<b>TRAM SCENARIO</b>											
EP101	1900-GE-901 - Generator	3.637	1.539	0.196	1.132	0.199	14.55	6.155	0.783	4.526	0.794
EP201	1200-DC-201 - Crushing Dust Collector			0.210					0.125		
EP301	Ore Stockpile			0.000					0.016		
EP302	1200-LD-201- Tram Bin to Coarse Ore Stockpile			0.154					0.110		
EP303	Loader grab from Coarse Ore Stockpile			0.067					0.040		
EP401	Waste Rock Stockpile			0.000					0.007		
EP402	1200-LD-201- Tram Bin to Waste Rock Stockpile			0.066					0.110		
EP403	Loader grab from Waste Rock Stockpile			0.029					0.009		
EP404	Loader dump Waste Rock Stockpile into Truck			0.029					0.009		
EP501	Conc bldg tailings pile			0.000					0.000		
EP502	Loader grab from Tailings Stockpile			0.000					0.000		
EP503	Loader dump Tailings to Truck			0.000					0.000		
EP601	TWSF Waste Rock truck dumping			0.001					0.002		
EP602	TWSF area management			0.201					0.279		
EP603	TWSF wind erosion			5.603					2.559		
EP604	Truck Dumps Tailings TWSF			0.001					0.000		
EP901	Roads (tram scenario)			1.586					1.047		
EP1001	Loader Traffic			0.250					0.149		
EP1101	1200-BN-201 - Mined Rock to Tram Bin			0.003					0.002		
EP1102	1200-FE-201 - Bin to Tram			0.220					0.110		
EP1201	Loader drop to Primary Crusher feed bin			0.067					0.040		
EP1401	1200-BN-203 - Fine Ore Bin (in)			0.003					0.002		
EP1402	1200-BN-203 - Fine Ore Bin (out) fully enclosed			0.000					0.000		
EP1501	1400-SI-401 - Cement Silo (in)			0.001					0.007		
EP1502	1400-SI-401 - Cement Silo (out) fully enclosed			0.000					0.000		
EP1601	Underground emissions vented from mine mouth	4.688	18.48	1.719	0.552		4.82	18.98	1.581	0.567	
EP1701	Load /Unload at Topsoil stockpile			0.000					0.001		
EP1702	Topsoil Stockpile			0.007					0.294		
	<b>Total TRAM SCENARIO</b>	<b>8.3</b>	<b>20.0</b>	<b>10.4</b>	<b>1.7</b>	<b>0.2</b>	<b>19.4</b>	<b>25.1</b>	<b>7.3</b>	<b>5.1</b>	<b>0.8</b>

<b>NO TRAM SCENARIO</b> These sources replace the yellow Tram Only sources. Truck dump Waste Rock is from Mine to TWSF instead of from Waste rock stockpile at the tram to TWSF											
EP0901	Roads (no tram scenario)			5.742					3.819		
EP1301	Truck Dump Crusher Ore Pile (no tram scenario)			0.002					0.001		
EP1303	Mined Rock truck dump			0.003					0.002		
EP1304	Loader grab from mined rock pile			0.096					0.048		
EP1302	Mined Rock stockpile			0.000					0.007		
EP2001	Truck Dump Crusher Ore Pile (no tram scenario)			0.002					0.001		
	<b>Total NO TRAM SCENARIO</b>	<b>8.3</b>	<b>20.0</b>	<b>14.3</b>	<b>1.7</b>	<b>0.2</b>	<b>19.4</b>	<b>25.1</b>	<b>9.9</b>	<b>5.1</b>	<b>0.8</b>



		NOx	CO	PM	SOx	TOC		NOx	CO	PM	SOx	TOC
Source ID	Source	tpy	tpy	tpy	tpy	tpy		lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/h
<b>SUNSHINE PORTAL SCENARIO</b> This scenario matches the No Tram scenario except for a different mine portal location, shorter roads, and no 1301-1304 transfer to larger trucks outside the mine												
EP3001	For the Sunshine Portal scenario: EP 3001 replaces EP1601.	4.688	18.48	1.719	0.552	0.000		4.816	18.98	1.581	0.567	0.000
EP0902	Roads (Sunshine portal scenario)			3.714						2.457		
	<b>Total SUNSHINE PORTAL SCENARIO</b>	<b>8.3</b>	<b>20.0</b>	<b>12.2</b>	<b>1.7</b>	<b>0.2</b>		<b>19.4</b>	<b>25.1</b>	<b>8.5</b>	<b>5.1</b>	<b>0.8</b>

Yellow universally represents tram scenario only emissions  
Orange universally represents No tram scenario only emissions  
Green universally represents Sunshine Portal scenario only emissions

Though cobalt will be the mineral the mining effort is aimed at, no emissions of cobalt metal or the two cobalt based toxic air pollutants (TAPs) listed in IDAPA 58.01.01.586 (Cobalt carbonyl as Co, Cobalt hydrocarbonyl as Co) will occur. The cobalt is in a cobalt sulfide form. Project proponents will not engage in any activities that would cause the cobalt to detach from the sulfur. The sulfides are critical to recovery of the mineral. Cobalt containing material will be concentrated in its original sulfide form.

The only source of TAP emissions at the ICP facility will be the combustion byproducts of fuel consumed by the stand-by generator. Screening levels for TAPs are established in IDAPA 58.01.01.585 for non-carcinogens and IDAPA 58.01.01.586 for carcinogens. This source meets the exemption criteria set forth in IDAPA 58.01.01.233. Specific emissions levels were estimated based on AP-42 factors and are provide in Table 4-2 below.

**Table 4-2 Potential to Emit HAPs / TAPs**

Pollutant	EF	Hrs/yr	Units	lb/yr	tons/yr	EPA Regulated HAPs tons/yr	Max lb/hr	avg lb/hr
Benzene	7.76E-04	500	lbs/hp-hr	434.17	0.2171	0.2171	0.8683	0.0496
Toluene	2.81E-04	500	lbs/hp-hr	157.22	0.0786	0.0786	0.3144	0.0179
Xylenes	1.93E-04	500	lbs/hp-hr	107.98	0.0540	0.0540	0.2160	0.0123
Propylene	2.79E-03	500	lbs/hp-hr	1561.01	0.7805		3.1220	0.1782
Formaldehyde	7.89E-05	500	lbs/hp-hr	44.14	0.0221	0.0221	0.0883	0.0050
Acetaldehyde	2.52E-05	500	lbs/hp-hr	14.10	0.0070	0.0070	0.0282	0.0016
Acrolein	7.88E-06	500	lbs/hp-hr	4.41	0.0022	0.0022	0.0088	0.0005
Napthalene	1.30E-04	500	lbs/hp-hr	72.74	0.0364	0.0364	0.1455	0.0083
Acenaphthylene	9.23E-06	500	lbs/hp-hr	5.16	0.0026		0.0103	0.0006
Acenaphthene	4.68E-06	500	lbs/hp-hr	2.62	0.0013		0.0052	0.0003
Fluorene	1.28E-05	500	lbs/hp-hr	7.16	0.0036		0.0143	0.0008
Phenanthrene	4.08E-05	500	lbs/hp-hr	22.83	0.0114		0.0457	0.0026
Anthracene	1.23E-06	500	lbs/hp-hr	0.69	0.0003		0.0014	0.0001
Fluoranthene	4.03E-06	500	lbs/hp-hr	2.25	0.0011		0.0045	0.0003
Pyrene	3.71E-06	500	lbs/hp-hr	2.08	0.0010		0.0042	0.0002
Benz(a)anthracene	6.22E-07	500	lbs/hp-hr	0.35	0.0002		0.0007	0.0000
Chrysene	1.53E-06	500	lbs/hp-hr	0.86	0.0004		0.0017	0.0001
Benzo(b)fluoranthene	1.11E-06	500	lbs/hp-hr	0.62	0.0003		0.0012	0.0001
Benzo(k)fluoranthene	2.18E-07	500	lbs/hp-hr	0.12	0.0001		0.0002	0.0000
Benzo(a)pyrene	2.57E-07	500	lbs/hp-hr	0.14	0.0001		0.0003	0.0000
Indeno(1,2,3-cd)pyrene	4.14E-07	500	lbs/hp-hr	0.23	0.0001		0.0005	0.0000
Dibenz(a,h)anthracene	3.46E-07	500	lbs/hp-hr	0.19	0.0001		0.0004	0.0000
Benzo(g,h,i)perylene	5.56E-07	500	lbs/hp-hr	0.31	0.0002		0.0006	0.0000
Total PAH	2.12E-04	500	lbs/hp-hr	118.61	0.0593		0.2372	0.0135
Emissions in AP-42 are < values listed					<b>1.280</b>	<b>0.417</b>		

## 5.0 Facility Classification

The Idaho Cobalt Project is located in Lemhi County, which has been designated by the US EPA as “attainment” or “unclassified” for all criteria pollutants. For attainment or unclassified areas, a source is considered a Prevention of Significant Deterioration of Air Quality (PSD) Program major source if it has the potential to emit: (1) 10 tons per year or more of any hazardous air pollutant, or (2) 25 tons per year or more of combined hazardous air pollutants or, (3) 100 tons per year or more of a regulated pollutant if the source is classified as one of twenty-eight designated industrial source categories or, (4) 250 tons per year or more of a regulated pollutant from a stationary source. For the Title V Operating Permit program, a source is considered major if potential emissions exceed 100 tons per year. For HAPs, a source is considered major if it emits more than 10 tons per year of an individual HAP or more than 25 tons of HAPs per year cumulatively.

The Idaho Cobalt Project is not a designated facility and will not produce emissions in excess of any of the above thresholds. As described by the tables in Section 4 of this application, the facility’s potential to emit is sufficiently low (less than 21 tons per year for all criteria air pollutants, most of that from fugitive emission sources) for ICP to be considered a minor source of air emissions, not reaching PSD, Title V, or HAP major source thresholds. The criteria air pollutant with the highest emissions, therefore driving the facility classification, is shown by Table 4-1 to be CO. Most of the CO emissions are fugitives exiting the mine portal from underground blasting. No credit was taken for chemical degradation or transformation of CO before its exposure to ambient air, though such decreases in CO would occur. PM-10 is the only other criteria pollutant with Potential To Emit greater than 10 tons. Table 4-1 also shows that the vast majority of PM-10 emissions would also be fugitives.

## **6.0 Scaled Plot Plan**

The facility plot plan is included below, and is supplemented by figures 7-1 through 7-5 in the modeling report in Section 7.0 and the first of the four Process Flow Diagrams in Section 2. All figures are also provided as standalone electronic files on the accompanying CD-ROM.



